

**REMARKS****Rejections**

Claims 2-3, 5-7, 9, 10, 12, 14-16, 18-19, 30 and 31 were previously pending and all stand rejected.

**§101 Rejection**

Claims 12, 14-16, 18, 19 and 31 directed to the optical disc stand rejected under 35 U.S.C. §101 on the grounds that the claimed invention is directed to non-statutory subject matter. The Examiner stated "The abovementioned claims relate to an optical disc carrying data with limitations defining how the data was created. The claims are therefore nonfunctional descriptive material because they relate to merely data on a disc and there is no requisite functionality present to satisfy the practical application requirement. See MPEP 2106.01."

**§101 Rejection Traversed**

This rejection is traversed on two grounds: (1) independent apparatus Claim 31 as previously pending and as further amended is an article of manufacture claim, and (2) MPEP 2106.01 is not pertinent because the claimed article falls explicitly within the domain of patentable subject matter under MPEP 2106.01 (not to concede that the MPEP is law or part of the patent regulations, or even pertinent.) Article of manufacture claims are statutory. It is clear that Claim 31 is directed to more than the mere data, since in addition to the pits and lands and transitions, the claim recites the "data patterns" which are on the optical disc. The fact that Claim 31 also recites the method by which the data patterns are created and their effects when played does not render this subject matter non-patentable. It is conceded that aspects of Claim 31 are directed to the way the disc is made. At worst then, this is a product by process claim which is also patentable subject matter. Claim 31 is clearly directed to more than the mere data or an aggregation of data or printed matter which seems to be the Examiner's reason for the rejection. Clearly further there is

functionality in Claim 31 since Claim 31 is directed to not only the way the disc is made, but also the effects it has when played.

Further, MPEP 2106.01 is not pertinent. The first line of MPEP 2106.01 (I) (see MPEP page 2100-18) says “Data structures not claimed as embodied in computer-readable media are descriptive material per se...” However, clearly an “optical disc” as recited here is a computer-(or machine) readable media, so this part of MPEP 2106.01 on its face is not applicable, and the rejection is not well founded. Further, the last sentence of that paragraph states “...a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer hardware and software components which permit the data structure’s functionality to be realized, and is thus statutory.” This is emphasized in MPEP 2106.01 on page 2100-17, in the same section, left column, second paragraph “When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of the technology permits the function of the descriptive material to be realized.”

Therefore it is clear that under this standard (not conceded by Applicant to be legally correct, but binding on the Office) that the subject matter of Claim 31 is statutory. First, even if the claimed data patterns are ‘descriptive’, they are also functional, since they do something (inhibit copying.) Further, in fact the claimed data patterns are only functional, not descriptive. When played, the output data in fact cannot be used by a writer of recordable discs as data, since as stated in the claim the data patterns “cannot be accurately copied.” Hence they in this context they have functionality, but not descriptiveness.

Next, the data patterns are recited in the claim as being on a computer (or other machine, such as a DVD player) readable medium, the optical disc. Last, Claim 31, in accordance with the MPEP definition of statutory subject matter, is explicit about the structural and functional interrelationships between the data patterns and the computer (or in this case) software and hardware components which are the “laser beam recorder” and “encoder” and “a writer for

recordable discs”, all recited in Claim 31. Thus it is clear that under the MPEP 2106.01 standard, Claim 31 is statutory.

Therefore it is respectfully submitted that Claim 31, even prior to the present amendments, falls within the scope of patentable subject matter under 35 U.S.C. §101.

#### Amendment to Claim 31

However in order to clearly to obviate this rejection and to expedite prosecution, Claim 31 has been amended here to make it clearer that it is directed to a particular physical structure which defines the article of manufacture. See the amendment here to the preamble of Claim 31 reciting “An optical disc carrying a plurality of pits and lands defined in its surface, each defining a state transition and thereby defining encoded data, the data comprising:...”. This reads on the specification at page 10, lines 14-22, describing the pits and lands and state transitions. Of course it is understood that pits and lands and state transitions are known in the field. However, this makes it clear that Claim 31 is directed to the physical structure of a particular optical disc whose data is both recorded in a certain way in terms of relevant hardware and software components (the laser beam recorder and its encoder) and also has a certain effect when played on hardware and software components (the writer for recordable discs), all recited in the claim.

Therefore it is requested the Examiner reconsider the §101 rejection of Claim 31 (and the claims dependent thereon) and withdraw this rejection.

#### §103 Rejection

Further Claims 3, 5-7, 9, 12, 14-16, 18-19 and 30-31 stand rejected under 35 U.S.C. §103 as unpatentable over Hogan in view of Maenza and further in view of Menezes (Handbook of Applied Cryptography).

The Examiner stated in pertinent part:

As per claims 30-31, Hogan discloses providing data patterns on the disc arranged such that the disc patterns cannot be accurately copied onto another disc by a writer for recordable discs which as a limited ability to look ahead during encoding, wherein the data patterns have a DSV (digital sum value) which has a rapid rate of change over time...; the data patterns making up a signature (Hogan: Col 3, lines 48-60; Col 5, line 64 to Col 6, line 41; Figs 3A, 3B, 3C, 3D);...

Hogan fails to explicitly disclose an authentication signature technique used in a mastering process.

However, Maenza teaches employing authentication signature techniques in a mastering process (see Abstract)....

The modified Hogan and Maenza system fails to disclose the use of an XOR function to scramble the patterns that make up the authentication signature.

However, Menezes teaches the use of scrambled data patterns to make an authentication signature (see pages 22-23) and teaches the use of the XOR function to scramble data (see page 20).

It would have been obvious to one of ordinary skill in the art at the time the invention was filed to combine the ideas of Menezes with those of Hogan and Maenza because doing so allows for non-repudiation of data and to protect data quickly.

The remaining claims were rejected citing the references mentioned above.

#### §103 Rejections Traversed

The rejection of the claims under §103 is traversed.

First, it is respectfully submitted that the Examiner's reasons for the combination of Maenza with Hogan are weak and legally insufficient. Moreover, it is understood that while there is no clear test for the sufficiency for an obvious rejection involving a combination of teachings of various references, it is understood that there must be some particular motivation found in the one of the references or somewhere else in the art or "common sense" to support a combination. At a minimum there must be some support in a teaching or knowledge known to those in the art. The

Examiner failed to cite same. Therefore, it is respectfully submitted that first, the Maenza combination with Hogan is inadequately supported and hence fails *prima facie*.

Second as regards the third reference Menezes, it is respectfully submitted that also the combination of the teachings of this reference with those of the other two references is not supported and there would be no reason to make such a combination.

The third reference Menezes is directed to cryptography. It is well understood in the field that cryptography is not the same as scrambling. Cryptography is the process of processing a message such that it can be read only by the intended recipient. It typically applies to numerical or alphanumeric data.

In contrast, scrambling is most often used with, for instance, analog transmissions of video or audio signals such as telephone or television. However while it is possible to scramble digital data, scrambling is not particularly strong in terms of protecting the content since there are limited number of scrambling techniques and algorithms available.

While a complete copy of Menezes is not available to the undersigned, another standard text in the field entitled "Applied Cryptography", second edition by Bruce Schneier, John Wiley & Sons, 1996, is available. This book, although a complete review of the field, includes no entries in its index for scrambling, see attached copy of Index of this book, page 755. There is also no entry for descrambling, see copy of Index of this book, page 747. This makes it clear that scrambling is not regarded as the same technology or even closely related to that of cryptography.

The Menezes reference, as indicated by the excerpts provided by the Examiner, is a book also devoted to cryptography. See the title of the book and also that of Chapter 1, page 20 "Overview of Cryptography". See the heading at the top of page 20 "Product ciphers". The recitation to the "exclusive or" function in section 1.35 on page 20 of the Menezes reference is clearly directed to a product cipher identified in that paragraph as "a polyalphabetic substitution cipher...a transposition cipher...." Clearly this is all in the cipher (cryptography) field.

The Examiner further cited Menezes pages 22 and 23 relating to digital signatures. Digital signatures, of course, are not ciphers and are not scrambling. Instead as identified on the first paragraph of page 22 of the Menezes reference “A cryptographic primitive which is fundamental in authentication, authorization, and non-repudiation is the digital signature. The purpose of a digital signature is to provide a means for an entity to bind its identity to a piece of information. The process of signing entails transforming the message and some secret information held by the entity into a tag called a signature.” Thus, signatures are for authentication, authorization and non-repudiation. They do not involve transforming the content so as to protect the content itself from being read.

Thus it is clear from the Menezes reference that a digital signature is not the same as cryptographic protection, and also of course has nothing to do with scrambling. This is because first of all there is no indication of any relationship between scrambling and digital signatures in Menezes or elsewhere, and moreover the Menezes reference appears to have nothing to do with scrambling since it is in the cryptography field.

Therefore, it is respectfully submitted that the combination of teachings put forth by the Examiner in rejecting the present claims citing the Menezes reference is unfounded.

It is not disputed that scrambling data is generally known in the scrambling field. It is also not disputed that the existence of digital signatures is well known, as attested to by Menezes. Applicant have made no attempt to indicate that either of these by themselves are inventive.

Instead, the present claims are directed to, see for instance Claim 30 preamble “A method of copy protecting an optical disc”. Of course, Menezes has nothing to do with copy protection. Instead, it is directed to cryptography. Further, Claim 30 calls for in the second clause in the body of the claim “subjecting the data patterns to an exclusive Or (XOR) scrambling algorithm;”. Further as pointed out above, Menezes has nothing to do with scrambling. It uses exclusive Or functions for cryptography. As pointed out above, cryptography is not the same as

scrambling and there is generally no close association between these two techniques, which belong to different fields.

Moreover while scrambling *per se* is well known, using scrambling for copy protection is different than merely scrambling the content to prevent it being read at all, which is the typical use of scrambling. In accordance with Claim 30, the scrambling is to prevent copying, not for preventing a recipient from reading the message when he is not authorized to do so. In fact, the copy protection in accordance with Claim 30 in most commercial embodiments must not prevent playing of the disc by anyone, or it would be useless.

Hence Claim 30 is directed to using scrambling to prevent copying but not playing. This is not the normal use of scrambling; normally it is easy to copy a scrambled signal but the technical problem is to descramble (play) it. However given the limitations of recordable disc writers, the present inventors recognized that scrambling does provide copy protection due to the technical nature and limitations of most recordable disc writers.

Of course there is nothing like this in any of the references, including the Menezes reference.

Moreover of course in Menezes, while there is a description of the XOR function, this is in the context of cryptography and while also there is a description of digital signatures, no connection is made between the two. It is clear that the Menezes exclusive XOR function is conventionally used for cryptography, while the Menezes digital signatures are used conventionally for authentication and verification, which is not the same as cryptography. The very description in the Menezes reference makes this clear since these two are described in the first chapter of the reference which is an overview, that is, this essentially a list of definitions. It is assumed that the Examiner found nothing further in the Menezes reference linking use of digital signatures to exclusive Ors, or use of exclusive Ors for scrambling. Hence clearly the Menezes reference fails to meet the deficiencies in the Hogan and Maenza references admitted by the Examiner. Thereby, even the combination of all three references fails to meet the claim.

Further, even if the Examiner believes that somehow the description of digital signatures and exclusive Or functions in the Menezes reference meets those limitations in for instance Claim 30, there is nothing in any of the references, or otherwise cited by the Examiner in the field to indicate how or why one would combine the Menezes digital signature and the exclusive Or with the teachings of the other two references.

The purported motivation given by the Examiner as quoted above is that “because doing so allows for non-repudiation of data and to protect data quickly.” This motivation is not on point and is not adequate as a matter of law. First, there is no goal in the present invention in “non-repudiation” of data. Second, there is no indication why this would “protect data quickly.” The quickness or lack of quickness does not seem to be an issue in any of the references and is also not a motivation for the present invention.

While it is recognized that there is no need for the explicit motivation for a combination to be expressed in the references, it is still the case law that this motivation must be present either in another reference or be well known in field or a matter of “common sense” in the field. The Examiner did not point to any of these as the motivation, hence it is respectfully submitted that the combination of all three references is not supported, especially as regards to the third reference Menezes, so the rejection is inadequate.

Hence Claim 30 clearly distinguishes over the references as does independent apparatus Claim 31, which recites much of the same subject matter of Claim 30.

The remaining claims are all dependent upon one of these claims and hence allowable for at least the same reason as is the base claim.

#### New Claims

Applicant added three new dependent claims here, Claims 32-35.



Claim 33 is dependent on Claim 30 and directed to the optical disc resulting from the method of Claim 30 and is allowable for at least the same reason as the base claim.

Claims 34 and 35 are each dependent upon Claim 30. Claim 34 recites essentially the same subject matter as Claim 12, and Claim 35 recites essentially the same subject matter of Claim 19, both dependent on Claim 31. Hence new Claims 34 and 35 are well supported and allowable for at least the same reason as the base claim.

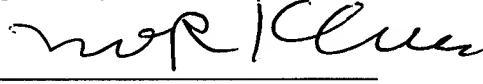
**CONCLUSION**

Therefore it is respectfully submitted that all pending claims in this case are allowable and allowance thereof is requested. This Amendment is filed under Rule 34. The correspondence address remains that of Macrovision Corporation.

In the event that the U.S. Patent and Trademark Office determines that an extension of time and/or other relief is required, Applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or fees due in connection with the filing of this paper to the undersigned's **Deposit Account No. 03-1952** referencing docket no. 136922003800.

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Respectfully submitted,

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